Warm Up:

Simplify:

$3\sqrt{8} + 3\sqrt{2}$

$6\sqrt{2} + 3\sqrt{2}$

$9\sqrt{2}$

$3\sqrt{18} - 2\sqrt{2}$

$9 \cdot 2$

$3\sqrt{2}$

$9\sqrt{2} - 2\sqrt{2}$

$7\sqrt{2}$

$\frac{4}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{4\sqrt{5}}{5}$

$\frac{\sqrt{5}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

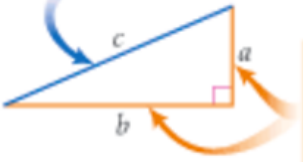
$\frac{\sqrt{15}}{3}$

10.1 - Pythagorean Theorem

Pythagorean Theorem:

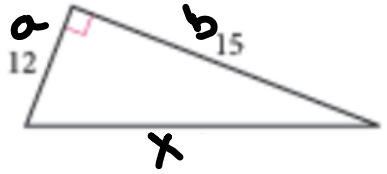
$a^2 + b^2 = c^2$

In a right triangle, the side opposite the right angle is called the **hypotenuse,** here with length *c*.



The other two sides are **legs,** here with lengths *a* and *b*.

1.



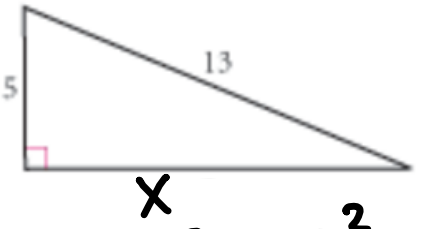
$12^2 + 15^2 = c^2$

$144 + 225 = c^2$

$\sqrt{369} = c^2$

$c = 19.2$ units

2.



$a^2 + 5^2 = 13^2$

$a^2 + 25 = 169$

$-25 \quad -25$

$a^2 = \sqrt{144}$

$a = 12$ units

Investigation 2 on page 500

Converse of the Pythagorean Theorem: If the lengths of the three sides of a triangle satisfy the Pythagorean Theorem, then the triangle is a right triangle.

$3^2+4^2=5^2$

$9+16$

3-4-5

$25=25$

5-12-13

6-8-10

9-12-15

$9, 10, 11$

$9^2+10^2=11^2$

$81+100=121$

8-15-17

January 30, 2020